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EXAMINER	
HA, JULIE	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/554,375	TROTTER ET AL.	
	Examiner	Art Unit	
	Julie Ha	1654	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-16 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-16 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election of Species

1. During a telephone conversation with Blossom Loo on November 3, 2006 a provisional election was made with traverse to prosecute the invention of species of sequence Phe-Arg-Ser-Ser-Arg-Gln and a pain relieving agent, claims 6 and 7, respectively. Affirmation of this election must be made by applicant in replying to this Office action. No claims were withdrawn. Claims 1-16 are pending.

2. A provisional election was made with traverse, however no arguments were given. The different amino acid sequences make the two peptides patentably distinct. The therapeutic agents listed in claim 7 are patentably distinct due to the different functions of the therapeutic agents. Search for an antimicrobial agent would not lead to a pain relieving agent. Election of species is FINAL.

Objections-Specification

3. The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

(a) TITLE OF THE INVENTION.
(b) CROSS-REFERENCE TO RELATED APPLICATIONS.
(c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
(d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT.

(e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC.
(f) BACKGROUND OF THE INVENTION.
(1) Field of the Invention.
(2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
(g) BRIEF SUMMARY OF THE INVENTION.
(h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
(i) DETAILED DESCRIPTION OF THE INVENTION.
(j) CLAIM OR CLAIMS (commencing on a separate sheet).
(k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
(l) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

4. The disclosure is objected to because of the following informalities: The contents of Specification should be clearly divided into Background, Summary, and Descriptions. Appropriate correction is required.

Claims Rejection-35 USC 112, 2nd Paragraph

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1, 9, and 11-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 is drawn to a wound dressing comprising a therapeutic agent and a matrix comprising polymers joined by cross-linkages which cross-linkages comprise

oligopeptidic sequences. It is unclear how the matrix is formed. Furthermore, it cannot be determined what is making the cross-linkage, the polymers or oligopeptidic sequences or both.

Claims 11-15 are drawn to a wound dressing comprising a barrier layer. It is unclear from the Specification and the claims what this barrier layer is and how this is different from the cross-linker polymer matrix.

Claim 12 is drawn to a wound dressing wherein the barrier layer comprises an apertured sheet having a composition comprising the cross-linked polymers applied thereto in "occlusive fashion". It is unclear from the claim and the Specification what "occlusive fashion" means.

Claim 1 recites the limitation "the protease" in the last line of the claim. There is insufficient antecedent basis for this limitation in the claim.

Claim 9 recites the limitation "the wound contacting layer" in the 1st and 2nd lines of the claim. There is insufficient antecedent basis for this limitation in base claim 1 and 8.

Claims Rejection-35 USC 112, 1st Paragraph

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 1-5, and 7-16 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The MPEP states that the purpose of the written description requirement is to ensure that the inventor had possession, as of the filing date of the application, of the specific subject matter later claimed by him. The courts have stated:

> "To fulfill the written description requirement, a patent specification must describe an invention and do so in sufficient detail that one skilled in the art can clearly conclude that "the inventor invented the claimed invention." Lockwood v. American Airlines, Inc., 107 F.3d 1565, 1572, 41 USPQ2d 1961, 1966 (1997); In re Gosteli, 872 F.2d 1008, 1012, 10 USPQ2d 1614, 1618 (Fed. Cir. 1989) ("[T]he description must clearly allow persons of ordinary skill in the art to recognize that [the inventor] invented what is claimed."). Thus, an applicant complies with the written description requirement "by describing the invention, with all its claimed limitations, not that which makes it obvious," and by using "such descriptive means as words, structures, figures, diagrams, formulas, etc., that set forth the claimed invention." Lockwood, 107 F.3d at 1572, 41 USPQ2d at 1966." Regents of the University of California v. Eli Lilly & Co., 43 USPQ2d 1398.

The MPEP lists factors that can be used to determine if sufficient evidence of possession has been furnished in the disclosure of the Application. These include "level of skill and knowledge in the art, partial structure, physical and/or chemical properties, functional characteristics alone or coupled with a known or disclosed correlation between structure and function, and the method of making the claimed invention. Disclosure of any combination of such identifying characteristics that distinguish the claimed invention from other materials and would lead one of skill in the art to the conclusion that the applicant was in possession of the claimed species is sufficient." MPEP 2163.

Further, for a broad generic claim, the specification must provide adequate written description to identify the genus of the claim. In Regents of the University of California v. Eli Lilly & Co., the court stated:

"A written description of an invention involving a chemical genus, like a description of a chemical species, 'requires a precise definition, such as by structure, formula, [or] chemical name,' of the claimed subject matter sufficient to distinguish it from other materials. Fiers, 984 F.2d at 1171, 25 USPQ2d at 1606; In re Smythe, 480 F.2d 1376, 1383,178 USPQ 279, 284-85 (CCPA 1973) ("In other cases, particularly but not necessarily, chemical cases, where there is unpredictability in performance of certain species or subcombinations other than those specifically enumerated, one skilled in the art may be found not to have been placed in possession of a genus..."). Regents of the University of California v. Eli Lilly & Co., 43 USPQ2d 1398.

The MPEP further states that if a biomolecule is described only by a functional characteristic, without any disclosed correlation between function and structure of the sequence, it is "not sufficient characteristic for written description purposes, even when accompanied by a method of obtaining the claimed sequence." MPEP 2163. The MPEP does state that for generic claim the genus can be adequately described if the disclosure presents a sufficient number of representative species that encompass the genus. MPEP 2163. If the genus has a substantial variance, the disclosure must describe a sufficient variety of species to reflect the variation within that genus. See MPEP 2163. Although the MPEP does not define what constitute a sufficient number of representative, the Courts have indicated what do not constitute a representative number species to adequately describe a broad generic. In Gostelli, the Court determined that the disclosure of two chemical compounds within a subgenus did not describe that subgenus. In re Gostelli, 872 F.2d at 1012, 10 USPQ2d at 1618.

In the instant case, claim 1 is drawn to a wound dressing comprising a therapeutic agent and a matrix comprising polymers joined by cross-linkages that comprise oligopeptidic sequences. The generic statement is matrix since the claims do not describe a single structural feature of the matrix. The dictionary defines matrix as something that constitutes the place or point from which something else originates, takes form, or develops. Polymers are diverse units. Polymers can be made up of

peptides, small molecule, long hydrocarbons, and biopolymers. The claims do not describe a single structural feature of polymers. Cross-linkages do not define structures. Cross-linking can be components, carbon chains, peptides, nucleosides, nucleotides, and synthetic molecules. There is no structural definition. The specification does provide that the matrix depends on the length of the oligopeptidic sequences. However, it does not specifically describe the length of the peptide sequences.

While claim 2 provides that the polymers are not degraded by kallikrein or other factors that may be present in the wound, it does not provide the sequence specificity. While claims 3 and 4 provide the polymer, it does not provide the cross-linkage. While claims 5 and 6 provide the oligopeptide sequence, it does not provide the matrix. While claim 7 provides the therapeutic agent, it does not provide the polymer. While claim 8 provides the therapeutic agent and the matrix, it does not provide the cross-linkage. While claims 9-11, 16 provide the matrix and the therapeutic agent, it does not provide the cross-linkage. While claims 12-15 provide the cross-linked polymers and therapeutic agent, it does not provide the matrix.

Given the diverse nature of the instant application, cannot say the claims and specification provide ample written description.

As stated earlier, the MPEP states that written description for a genus can be achieved by a representative number of species within a broad generic. It is unquestionable claim 1 is broad generic with respect all possible matrix, therapeutic agent, oligopeptide sequence, polymers and cross-linkages encompassed by the claims. Any matrix, oligopeptide sequences, therapeutic agent and cross-linkages meet the limitations of the claim. The possible structural variations are limitless to any class of matrix, polymers, oligopeptidic sequences, and cross-linkages. It must not be forgotten

that the MPEP states that if a biomolecule is described only by a functional characteristic, without any disclosed correlation between function and structure of the sequence, it is "not sufficient characteristic for written description purposes, even when accompanied by a method of obtaining the claimed sequence." MPEP 2163. Here, though the claims may recite some functional characteristics, the claims lack written description because there is no disclosure of a correlation between function and structure of the compounds beyond compounds disclosed in the examples in the specification. Moreover, the specification lack sufficient variety of species to reflect this variance in the genus since the specification does not provide any examples of derivatives. The specification is void of any other matrices that qualify for the functional characteristics claimed as the matrix. The specification is limited to the rate of degradation of the matrix depending on number of factors, including the length of the oligopeptidic sequences. The description requirement of the patent statute requires a description of an invention, not an indication of a result that one might achieve if one made that invention. See In re Wilder, 736 F.2d 1516, 1521, 222 USPQ 369, 372-73 (Fed. Cir. 1984) (affirming rejection because the specification does "little more than outlin[e] goals appellants hope the claimed invention achieves and the problems the invention will hopefully ameliorate."). Accordingly, it is deemed that the specification fails to provide adequate written description for the genus of the claims and does not reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the entire scope of the claimed invention.

Claims Rejection-35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1-16 are provisionally rejected under 35 U.S.C. 102(e) as being anticipated by copending Application No. 2005/0159695 which has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the copending application, it would constitute prior art under 35 U.S.C. 102(e), if published under 35 U.S.C. 122(b) or patented. This provisional rejection under 35 U.S.C. 102(e) is based upon a presumption of future publication or patenting of the copending application.

In the instant application, claims 1-16 are drawn to a wound dressing that comprises a therapeutic agent and a matrix comprising polymers joined by cross-linkages comprise oligopeptidic sequences which are cleavable by a kallikrein and the dressing comprises a liquid permeable wound contacting layer, an intermediate layer, and an outer, liquid-impervious backing layer that initially separate the therapeutic agent in the wound dressing from wound fluid when in use.

Cullen et al (2005/0159695) teach a wound dressing comprising: a therapeutic agent selected from the group consisting of antimicrobial substances pain relieving, substances, protease inhibitors, and mixtures thereof; and a barrier layer for initially separating the therapeutic agent from a wound fluid in use, wherein the barrier layer comprises a substrate for an enzyme selected from the group consisting of proteases, kallikrein and tissue plasminogen activator (see abstract). This reads on claims 1-16 of instant application. The reference also teaches a wound dressing materials for the controlled release of therapeutic agents into wounds (see paragraph 0001). Furthermore, the reference teaches that the barrier sheet forms part of a layered wound dressing having the antimicrobial material disposed on the side of the barrier sheet opposite to the wound facing side of the barrier sheet, and the layered wound dressing further comprises an absorbent layer and/or a backing layer (see paragraphs 0027 and 0028). Furthermore, the backing layer is substantially liquid-impermeable and preferably semi-permeable, so that the backing sheet is preferably permeable to water vapor, but not permeable to liquid water or wound exudate (see paragraph 0032). The reference further teaches that the adhesive layer should be moisture vapor transmitting to allow passage of water vapor. Additionally, the barrier layer substantially encapsulates the antimicrobial substance (see paragraphs0034 and 0036). These read on limitations of claims 1, 8-16 of instant application.

If the ordinary skilled in the art practiced the invention of claim 1 of the copending application, it would necessarily produce the same claimed invention of instant

application. The copending application and the instant application would result in the same invention. In conclusion, they are not patentably distinct from each other.

This provisional rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the copending application was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131. This rejection may not be overcome by the filing of a terminal disclaimer. See *In re Bartfeld*, 925 F.2d 1450, 17 USPQ2d 1885 (Fed. Cir. 1991).

Claims Rejection-35 USC § 103

8. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

11. Claims 1-13 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanihara et al (US Patent # 5658592) in view of Wren DC (US Patent # 5238685) in further view of Plendl et al (Biol. Chem., 2000, 381: 1103-1115) in further view of Ulbrich et al (Biomaterials, 1982, 3: 150-154 and Biomaterials, 1980, 1: 199-204) and in further view of Chagas et al (Biochem. J., 1995, 306: 63-69). The claims are drawn to a wound dressing comprising a therapeutic agent and a matrix comprising polymers joined by cross-linkages which cross-linkages comprise oligopeptidic sequences which are cleavable by a kallikrein wherein the oligopeptidic sequence comprises of Phe-Arg-Ser-Ser-Arg-Gln or Met-Ile-Ser-Leu-Met-Lys-Arg-Pro-Gln.

Tanihara et al teach a drug delivery system that is water swelling polymer gel produced by covalently crosslinking a polysaccharide that has a drug releasing property. The reference also teaches that the polymer gel is useful as the structural component for wound dressings (see Column 1, Technical Field). The reference also refers to Wren DC Patent # 5238685 and this reference teaches that the wound dressings wherein the drugs such as antibacterial agents and local anesthesia may be

contained in a gel pad (see Wren Patent, column 8, claim 4), but the drugs are consistently released because the drugs are not immobilized onto the gel (see Tanihara et al, column 5, lines 3-7). Furthermore, the reference teaches a medical polymer gel produced by immobilizing a drug, through a cleavable group with the main chain to be cleaved via an enzymatic reaction and a spacer, onto a water swelling polymer gel in a sequence represented by the formula A-B-C-D (see column 5, lines 48-54). The reference teaches that A represents the water swelling polymer gel, B represents the spacer, C represents the cleavable group with the main chain to be cleaved by the enzymatic reaction and listed the peptide cleavable groups, and D represents the drug (see column 5, lines 57-67 and column 6, lines 1-4). The reference teaches that when a cleavable group with the main chain to be cleaved via an enzyme and a drug are bound together via an ester bonding, an ether bonding or a peptide bonding, the bonding site is specifically cleaved with the enzyme to release the drug of the intact chemical structure, advantageously (see column 11, lines 33-38).

The reference further teaches that the medical polymer gel may take an application form suitable for the objective of gel application, such as sheet, film, fiber, woven fabric, non-woven fabric, liquid, powder, sponge and the like. By monitoring the medical polymer gel into a plate form or a particle form, wound dressing may be obtained. By molding the gel as described and then attaching the molded gel with a film made of a polyurethane resin or a silicone resin followed by addition of coating of an adhesive, wound dressings may be produced. Because the wound dressings from the medical polymer gel are flexible due to the higher water content, less physical irritation

may be induced on wounds with less pain to the patient. Furthermore, because the dressings have excellent water retentivity, the dressings may be exchanged less frequently, with the decrease in patient pain, care, and wound damage, while greatly retaining the healing promoting factor in the exudates with no inhibition of the action of the factor, advantageously (see column 11, lines 39-59). Furthermore, Tranihara et al teach that the medical polymer drug delivery system has multiple layers: that the water swelling polymer gels were attached with polyurethane sheet coated with a polymethacrylate ester adhesive, followed by steam sterilization to prepare transparent wound dressings of sheet type (see column 19, lines 41-46). These meet limitations of claims 8-13, and 16. The difference between the references and the instant application is that although Tanihara et al teach A-B-C-D where C represents the cleavable group with the main chain to be cleaved by the enzymatic reaction, the references do not teach the oligopeptidic sequences Phe-Arg-Ser-Ser-Arg-Gln or Met-Ile-Ser-Leu-Met-Lys-Arg-Pro-Gln, kallikrein and the HPMA as the polymer.

However, Plendl et al teach that the kinin family of vasoactive peptides, formed by the serine protease tissue kallikrein from its endogenous multifunctional protein substrate kininogen play a role in the sequential steps that form the angiogenic cascade, leading to the formation of new blood vessels, that may occur in wound healing (see Pendl et al, abstract and discussion). Thus, kallikreins would be found at the wound sites, where new blood vessels would form and proliferate.

Ulbrich et al teaches preparation of novel types of biodegradable polymers that are new types of hydrophilic gels base on HPMA comprising joining relatively short

synthetic polymer chains by oligopeptidic sequences (see 1982 and 1980 Biomaterials). The reference teaches that such polymers could be used in drug delivery systems, similar to Tanihara et al, since they would eliminate the need to retrieve the exhausted depot, as in the case of a biostable matrix. Additionally, as degradation of these polymers might proceed by surface erosion, drug formulations could be prepared which would release the biologically active compound by zero order kinetics (see p. 150, 1982, left column, 2nd paragraph). The structure of oligopeptidic sequences must be chosen so as to correspond to that of the active site of the enzyme responsible for the degradation. The reference teaches polymers degradable in vitro with chymotrypsin and trypsin enzymes, and to verify that this method of preparation of enzymatically degradable polymers may be employed not only for serine proteases, the method was used to prepare polymers which contained bonds degradable with papain. The polymeric substrates were copolymers and polymers of HPMA (see Ulbrich et al, p. 199-203). The reference teaches that the substrates were degraded by the enzymes specific to the cleavage sites; Additionally, the rate of degradation is dependent on the peptide lengths (see p. 203, The effects of length of polymeric substrates). This reads on claim 4.

Furthermore, Chagas et al teach peptide sequences F-R-S-S-R-Q (see p. 65-66, Substitutions at P'_2 and Substitutions at P'_3 Sections) and M-I-S-L-M-K-R-P-Q (see p. 67, Substitution at P'_2 Section). The reference teaches that these peptide sequences are cleaved by tissue kallikreins, serine proteases involved in kininogen processing.

Furthermore, the cleavage at the Arg-Ser and Met-Lys bonds in bovine and human kininogens release lysyl-bradykinin (see p. 63, Introduction). This reads on claim 6.

Therefore, it would have been obvious to the ordinary skilled in the art to combine the a drug delivery system that is a swelling polymer gel produced by covalently crosslinking a polysaccharide that has a drug releasing property wherein the polymer gel is capable of releasing a therapeutically effective dose of a drug only at a focal site generating an enzyme, along with a wound dressing pad that included the therapeutic agent that can be cleaved by an enzyme found at the wound site. Tanihara et al teach a drug delivery system medical polymer gel capable of releasing a therapeutically effective dose of a drug only at a focal site generating an enzyme by immobilizing a drug onto a water swelling polymer gel through a cleavable group with the main chain to be cleaved via an enzymatic reaction (see column 5, lines 33-39). Since kallikrein plays a role in the angiogenesis (sprouting of new capillary blood vessels from pre-existing ones), and kallikrein cleaves specific peptide bonds, it would be obvious to substitute the linker "C" group of Tanihara's teaching with a peptide linker, because kallikreins are found at the wound sites and they cleave at Arg-Ser and Met-Lys bonds. It would be further obvious to substitute HPMA for the polymer gel drug delivery system in Tanihara, because biodegradable polymers, such as HPMA could be used in drug delivery system, as taught by Ulbrich et al (1982). There is a reasonable expectation of success to combine the peptide linker, because kallikreins are present at the wound site. There is a reasonable expectation of success to combine the HPMA to the peptide linker and to the drug delivery system polymer gel, because HPMA could be

used in drug delivery since using these polymers would eliminate the need to retrieve the exhausted depot, and Ulbrich et al teach that the peptide linkers are enzymatically degradable.

12. Claims 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanihara et al (US Patent # 5658592) as applied to claims 1-13, and 16 above, and further in view of Rawlings et al (US Patent # 5010883). The claims are drawn to a wound dressing wherein an absorbent layer is provided behind the barrier layer and the therapeutic substance is dispersed in the absorbent layer.

Tanihara et al teach a drug delivery system that is water swelling polymer gel produced by covalently crosslinking a polysaccharide that has a drug releasing property. The reference also teaches that the polymer gel is useful as the structural component for wound dressings (see Column 1, Technical Field). The reference further teaches 3 layers: by molding the medical polymer gel into a plate form or a particle form, wound dressings may be obtained. By molding the gel as described and then attaching the molded gel with a film made of a polyurethane resin or a silicone resin followed by addition of coating of an adhesive, wound dressings may be produced (see column 11, lines 44-59). The difference between the reference and the instant application is that the reference does not teach an absorbent layer.

However, Rawlings et al teaches an adhesive dressing for use on moist wounds. This adhesive dressing has 3 layers: intermediate layer is provided between the non-wound contacting surface of the first layer and the continuous layer. The intermediate

layer will be water transmitting so as not to prevent the passage of water from the wound to the continuous film (see column 8, lines 8-13). The intermediate layer may also carry a medicament, such as an antimicrobial agent, which is released to the wound area in use (see column 8, lines 29-31). The dressing has holes capable of transmitting liquid water and a moisture vapor permeable continuous film attached to the first layer thereby forming a reservoir into which water can pass and evaporate. The reference further teaches that the first layer may also incorporate or may have attached to its surface remote from the continuous film a water-absorbing material such as a hydrogel or a hydrophilic foam. The presence of such a material does not interfere with the escape of excess water but provides a reservoir of exudate, which remains (see column 9, lines 25-32). The reference teaches that it is desirable to allow the wound to heal in its moist state, especially if covered with a layer of wound exudate as this state is believed to be capable of accelerating wound healing (see column 1, lines 20-23).

Therefore, it would have been obvious to the ordinary skilled in the art to combine a drug delivery system that is water swelling polymer gel produced by covalently crosslinking a polysaccharide that has a drug releasing property that is useful as the structural component for wound dressing that is divided into 3 layers, and water absorbing intermediate layer to remove the excess water from the wound site. Tanihara et al teach that the water swelling polymer gels were attached with polyurethane sheet coated with a polymethacrylate ester adhesive, followed by steam sterilization to prepare transparent wound dressings of sheet type (see column 19, Reference Example 2). Rawlings et al teach an adhesive dressing suitable for use on moist

wounds which dressing comprises a pressure sensitive adhesive-coated first layer which has holes capable of transmitting liquid water and a moisture vapor permeable continuous film attached to the first layer thereby forming a reservoir into which water can pass and evaporate. There is a further water transmitting intermediate layer present between the first layer and the continuous film (see column 9, lines 7-22). Having a wound dressing with the water permeable layer prevents the dressing to leak, thereby maintaining sterility and reducing the chances of blister formation (see Rawlings et al Patent, column 1, lines 20-62). There is a reasonable expectation of success, since both Tanihara and Rawlings teach a wound dressing that has 3 layers and is capable of drug delivery to the wound site. It would have been obvious to combine a water absorbent layer to absorb any excessive exudate from the wound so that harmful blisters would not form, and to preserve wound healing in a moist environment (so that the wound would not dry out around the perforations and hence stick to the dressing).

Rejection-Double Patenting

13. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to

be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

14. Claims 1-16 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1 of copending Application No. 10/497442. Although the conflicting claims are not identical, they are not patentably distinct from each other because if one practiced the claimed method of Application No 10/497442, one would necessarily obtain the same wound dressing as the instant claimed invention. In the instant application, claims 1-16 are drawn to a wound dressing that comprises a therapeutic agent and a matrix comprising polymers joined by cross-linkages comprise oligopeptidic sequences which are cleavable by a kallikrein and the dressing comprises a liquid permeable wound contacting layer, an intermediate layer, and an outer, liquid-impervious backing layer that initially separate the therapeutic agent in the wound dressing from wound fluid when in use.

Application No. 10/497442 claims a wound dressing comprising: a therapeutic agent selected from the group consisting of antimicrobial substances, pain relieving substances, protease inhibitors, and mixtures thereof; and a barrier layer for initially separating the therapeutic agent from a wound fluid in use, wherein the barrier layer comprises substrate for an enzyme selected from the group consisting of proteases, kallikrein and tissue-plasminogen activator. The instant claims 1-16 wound necessarily produce the same wound dressing that has the same activity. If the ordinary skilled in the art practiced the invention of claim 1 of the copending application, it would

necessarily produce the same claimed invention of instant application. The copending application and the instant application would result in the same invention.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

15. Claims 1-16 are directed to an invention not patentably distinct from claim 1 of commonly assigned Application No. 10/497442. Specifically, if one skilled in the art practiced the claimed invention of Application No. 10/497442, it would necessarily produce the same wound dressing that would have the same activity, as described above in paragraph 15.

16. The U.S. Patent and Trademark Office normally will not institute an interference between applications or a patent and an application of common ownership (see MPEP Chapter 2300). Commonly assigned applications, discussed above, would form the basis for a rejection of the noted claims under 35 U.S.C. 103(a) if the commonly assigned case qualifies as prior art under 35 U.S.C. 102(e), (f) or (g) and the conflicting inventions were not commonly owned at the time the invention in this application was made. In order for the examiner to resolve this issue, the assignee can, under 35 U.S.C. 103(c) and 37 CFR 1.78(c), either show that the conflicting inventions were commonly owned at the time the invention in this application was made, or name the prior inventor of the conflicting subject matter.

A showing that the inventions were commonly owned at the time the invention in this application was made will preclude a rejection under 35 U.S.C. 103(a) based upon the commonly assigned case as a reference under 35 U.S.C. 102(f) or (g), or 35 U.S.C. 102(e) for applications pending on or after December 10, 2004.

In conclusion, the two copending applications are not patentably distinct from each other.

Conclusions

17. No claims are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Julie Ha whose telephone number is 571-272-5982. The examiner can normally be reached on Mon-Fri, 8:00 am to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cecilia Tsang can be reached on 571-272-0562. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Julie Ha
Patent Examiner

11/27/06
ANISH GUPTA
PRIMARY EXAMINER